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VASCULAR DISEASE

CIRCULATING SOLUBLE RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS IS RELATED TO ALBUMINURIA IN HYPERTENSION

ACC Poster Contributions
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Background: The soluble receptor for advanced glycation end-products (sRAGE) participates in the development and acceleration of atherosclerosis, while albuminuria is a marker of target organ damage. In this study we estimated the relationship of albumin to creatinine ratio (ACR) with sRAGE in essential hypertensives.

Methods: Our population consisted of 320 newly diagnosed untreated non-diabetic patients with stage I to II essential hypertension [192 men, mean age=52 years, office blood pressure (BP)=145/93 mmHg]. According to the ACR values determined as the mean of two non-consecutive morning spot urine samples, the study population was divided into microalbuminurics (n=64) (mean ACR=30-300 mg/g) and normoalbuminurics (n=256) (mean ACR<30 mg/g). Moreover, in all patients venous blood sampling was performed for estimation of lipid profile and sRAGE concentrations.

Results: Microalbuminurics compared to normoalbuminurics were older (55±6 vs 49±4 years, p<0.05), had higher 24-h systolic BP (140±11 vs 131±8 mmHg, p=0.001), while did not differ regarding metabolic profile (p=NS). Moreover, microalbuminurics compared to normoalbuminurics exhibited lower levels of sRAGE (1015±451 vs 1505±932 pg/ml, p=0.003). In the total population, ACR was positively related to age (r=0.344, p=0.004) and 24-h systolic BP (r=0.415, p<0.0001), whereas it was negatively correlated with sRAGE (r=-0.274, p=0.019). Regarding sRAGE, it was associated with body mass index (r=-0.245, p=0.006), waist to hip ratio (r=-0.462, p<0.0001) and 24-h pulse pressure (r=-0.371, p=0.001). Multiple regression analysis revealed that age, 24-h systolic BP and sRAGE were the independent predictors of ACR (R2=0.48, p<0.0001). Furthermore, analysis of covariance showed that sRAGE values were significantly different between groups even after adjustment for confounders (p<0.05).

Conclusion: In essential hypertension, microalbuminuria is accompanied by attenuated levels of sRAGE, reflecting pronounced vascular dysfunction. Moreover, the close association of sRAGE with ACR, suggests active involvement of sRAGE in atherosclerotic target organ damage progression in non-diabetic essential hypertensives.